United States Environmental Protection Agency | Solid Waste and Emergency Response (5102G) | EPA-542-F-97-010 July 1997

EPA

Cleaning Up the Nation's Waste Sites: Markets and Technology Trends, 1996 Edition

Fact Sheet and Order Information

Introduction

The U.S. Environmental Protection Agency (EPA) has synthesized recent information on the size of potential markets for cleanup technologies in a new report, *Cleaning Up the Nation's Waste Sites: Markets and Technology Trends, 1996 Edition*. This study updates and expands a 1993 analysis that brought together for the first time valuable information on site characteristics, market size, and other factors that affect the demand for remediation services. The update includes significant new data on cleanup needs related to RCRA corrective actions and sites administered by Department of Defense and Department Of Energy.

The considerable cleanup effort ahead over the next 30 years offers many opportunities to develop less expensive and more efficient technologies. Using the data in this study, technology developers and investors can better direct their resources towards the largest and most difficult problems in need of better cleanup methods. The data also should be useful to other companies providing remediation services.

Contents of Report

This study addresses the future demand for remediation services for all major cleanup programs in the U.S., including Superfund, RCRA corrective action, underground storage tanks (USTs), Department of Defense (DOD), Department of Energy (DOE), other federal agencies, and state programs. The data on each program include the number of sites that remain to be cleaned up, estimates of remediation cost, and site and waste characteristics. Also discussed are economic and other market factors that may change the size or characteristics of the market, procurement and technology issues, and program organization and contacts.

Highlights of the contents include:

- Trends in the selection of cleanup technologies in the Superfund program
- Examples of technology needs identified by federal and private users
- Analysis of contaminant frequency of occurrence at Superfund, DOD, and DOE sites
- Estimated quantity of contaminated material to be cleaned up at Superfund and UST sites
- List of 547 non-federal NPL sites requiring remediation, and the remedial status of each of 726 operable units at these sites
- List of DOE installations requiring cleanup and where cleanup is ongoing or completed; estimated cleanup costs by installation
- Over 100 references

Summary of Findings

Estimates for the number of sites requiring cleanup in each program are given below. Although USTs account for over 75% of all cleanup sites, typically they are the smallest and least costly to remediate. DOE and DOD have identified most of their sites, but many are still being characterized. Non-federal Superfund sites represent the smallest market. Other federal agencies, in particular the Department of Interior, are in the process of identifying specific sites on federal lands.

Future Remediation Market in the United States

Program	Estimated Number of Sites/Facilities	Notes
Superfund	550 sites	Non-federal facility sites
RCRA Corrective Action	3,000 facilities	
USTs	165,000 sites	
DOD	8,300 sites	At 2,000 installations
DOE	10,500 sites	At 137 installations
Other Federal Agencies	700 facilities	
States	29,000 sites*	

* Further investigation of these sites may lead to cleanup.

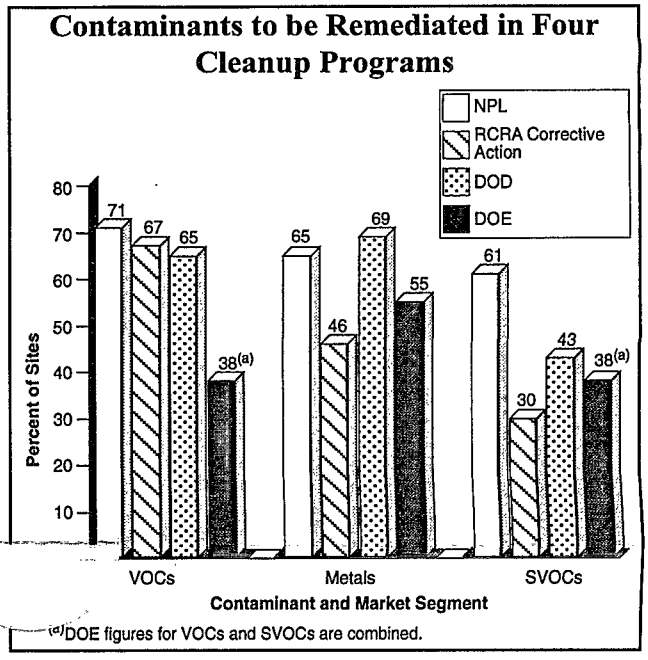
Technology Use. Some noteworthy trends in technology use include the following:

- Soil vapor extraction (SVE) has become the preferred technology for both chlorinated and nonchlorinated VOCs in soil.
- The use of *in situ* processes at UST sites has been rapidly increasing, and more biological processes are used for these sites than for other market segments.
- The use of on-site incineration for Superfund cleanups is down.

Contaminants Present. The report concludes that most programs have substantial numbers of sites with metals or volatile organic compounds (VOCs) such as solvents. Thus, different cleanup programs often will use similar treatment technologies. Semivolatile contaminants, such as polychlorinated biphenyls (PCBs) and polyaromatic hydrocarbons are less common. The bar chart gives dat for major contaminant groups in four programs. In addition, radioactive contaminants are found at 90% of DOE installations. Eight percent of DOD sites are known to contain explosives such as unexploded ordnance, and the number could grow as investigations continue.

Quantities to be Remediated. EPA will select technologies to clean up at least 33 million cubic yards of contaminated material at the 547 non-federal NPL sites. An estimated 31 million cubic yards of soil will be remediated at UST sites. Data are not available on waste quantities for other programs.

Future Technology Needs. Although technological advances have been made since the 1993 report, the two greatest needs remain



the same. The report concludes that more effective technologies are needed to treat metals in soil and groundwater in place. In addition, prospective technology users are interested in applying in situ processes for future cleanups, because they are cheaper, more acceptable to the public, and pose lower risk to workers.

Order Information. This report (EPA542-R-96-005) is available free from the EPA National Center for Environmental Publication and Information (NCEPI) at 800-490-9198 or 513-489-8190, or fax 513-489-8695. It is also viewable and downloadable from the Internet at http://www.clu-in.com.

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